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CENTRAL INTELLIGENCE AGENCY
WASHINGTON 25, D. C.

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MEMORANDUM TO:

Deputy Director/Plans

SUBJECT

: Transmittal of Scientific Intelligence Memorandum

1. Our studies of unconventional warfare have included for some time the potential agent, Lysergic Acid Diethylamide (LSD), which appears to be better adapted than known drugs to both interrogation of prisoners and use against troops or civilians. The Soviet Bloc has the necessary supplies of ergot from which to synthesize this drug. Moreover, the Bloc is presumably in full possession of the pertinent information on it since it is commercially available and open literature carries full accounts of experimental use.

2. Because we feel that the matter may be of concern to you, we are forwarding the attached Scientific Intelligence Memorandum, which discusses briefly the intelligence implications of LSD. C/SI has in production a detailed study on this drug that summarizes the literature on the subject, recounts the results of medical experimentation with it, and deals with its possible synthesis and production. This study, "Strategic Medical Significance of Lysergic Acid Diethylamide (LSD)", will soon be available to those who have a paramount interest in the subject.

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Assistant Director
Scientific Intelligence

SCIENTIFIC INTELLIGENCE MEMORANDUM

POTENTIAL NEW AGENT FOR UNCONVENTIONAL
WARFARE

Lysergic Acid Diethylamide (LSD)
(N, N-Diethyllysergamide)



CIA/SI 101-54
5 August 1954

CENTRAL INTELLIGENCE AGENCY

OFFICE OF SCIENTIFIC INTELLIGENCE

Scientific Intelligence Memorandum

POTENTIAL NEW AGENT FOR UNCONVENTIONAL WARFARE

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This memorandum is based on intelligence
available as of 1 August 1954

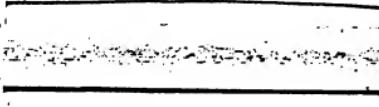
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CENTRAL INTELLIGENCE AGENCY
Office of Scientific Intelligence

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POTENTIAL NEW AGENT FOR UNCONVENTIONAL WARFARE

Lysergic Acid Diethylamide (LSD)
(N, N-Diethyllysergamide)

Lysergic acid diethylamide (LSD) (N, N-diethyllysergamide), a drug derived from ergot, is of great strategic significance as a potential agent in unconventional warfare and in interrogations.* In effective doses, LSD is not lethal, nor does it have color, odor or taste. Since the effect of this drug is temporary in contrast to the fatal nerve agents, there are important strategic advantages for its use in certain operations. Possessing both a wide margin of safety and the requisite physiological properties, it is capable of rendering whole groups of people, including military forces, indifferent to their surroundings and situations, interfering with planning and judgment, and even creating apprehension, uncontrollable confusion and terror.

Of all substances now known to affect the mind, such as mescaline, harmine and others, LSD is by far the most potent. Very minute quantities (upwards of 30 millionths of a gram) create serious mental confusion and sensual disturbances, or render the mind temporarily susceptible to many types of influences. Administration of the drug produces in an individual such mental characteristics of schizophrenia as visual or auditory hallucinations and physiological reactions of dizziness, nausea, dilation of the pupils, and lachrymation. These reactions, however, are not necessarily obvious and only a trained observer, after giving psychological tests, may definitely ascertain that a psychogenic drug has been administered. Data, although still very limited, are available which indicate its usefulness for eliciting true and accurate statements from subjects under its influence during interrogation. It also revives memories of past experiences. In at least one case there was complete amnesia of events during the effective period.

To date, no antidote nor specific countersagent is available. The effect of LSD may, however, be shortened in duration by the use of chlorpromazine, barbiturates, or the intravenous injection of glucose. Very limited methods of detection and identification are known, such as fluorescence, staining and spectrophotometry. Although the mechanism of action of this drug in the human body is not fully understood, it is nevertheless known to interfere with the carbohydrate metabolism and to affect the central nervous system, certain of the brain hormones, and other body functions.

*OSI is now completing a detailed study of LSD that will deal with the composition of the drug, its psychogenic properties, its development, experimental use, and distribution. This study entitled "Strategic Medical Significance of Lysergic Acid Diethylamide (LSD)" will be made available to those with a paramount interest in the subject.

LSD is a partially synthesized drug and was first prepared by Sandoz Ltd., of Switzerland in 1943. The unusually complex synthesis of the lysergic acid fraction of the drug, attempted by many workers during the past 20 years, has apparently not yet been accomplished by any country. Progress in the synthesis of the drug in the United States is reported to have reached the last and most difficult stage. Completion of the synthesis will facilitate the rapid solution of many problems, such as that of an effective antidote, stability, more effective derivatives and/or combinations, more accurate dosage ranges, adequate methods of specific detection, dissemination and complete control, for which there are still urgent strategic needs.

The basic material from which LSD is prepared is ergot and the Soviet Bloc has an abundant supply of it. The preparation of LSD has been published openly in considerable detail. Further, Sandoz Ltd., has made available free samples of it for clinical testing both in this country and in Europe. It is therefore assumed that this material is available to the Bloc inasmuch as no effective geographic limitation is known.

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The substance is too thick and too heavy to be manipulated easily, and therefore, it must be diluted with equal parts 95% alcohol. In the vial there is usually 1.8 grams and therefore 1.8 ccs of ethyl alcohol should be added to make a 50% solution. There is no need to worry about the specific density. After dilution the substance should be injected as evenly as possible along the entire length of the cigarette. The best instrument is 1/4 cc tuberculin~~s~~ syringe and a .22 gauge needle 1½ inches long. Insert the needle along the long axis of the cigarette and inject slowly meanwhile withdrawing and rotating the cigarette at the same time. Inject $\frac{1}{2}$ of the desired amount from one end of the cigarette and then allow the cigarette to stand on its end for approximately 5 minutes and then repeat using the other end of the cigarette. A small minute stain on the cigarette paper may appear but this should not arouse any suspicion.

THE味 OF THE SUBSTANCE

It is not miscible in an aqueous solution. It is best to put it in some soft or fatty substance such as butter or chocolate ~~xxxxxxxx~~ icecream. The substance is absolutely tasteless.

DOSE

In each cigarette .08 ccs of the solution which contains .04 of the substance. The dosage by mouth is .02 of the solution which contains .01 ccs of the substance. If the

interrogation lasts for a long period the dosage by inhalation can be repeated as often as necessary, but not more frequently than every half to three quarters of an hour by inhalation or every two and a half to three hours by ingestion. It must be pointed out that the dosage suggested is the average. It is our observation that if the individual is slight, tired, or has not been on a proper diet they will have more reaction than a well-fed American.

The maximum effect is obtained in 20 to 30 minutes by inhalation and in two hours if given by mouth. Effect by inhalation continues for two hours and by mouth for from 6 to 8 hours. The behavior of each individual under the effect of this drug varies definitely with the personality of the subject. That is: a timid individual may become paralyzed with fear, while hyper-active individuals may have active hallucinations. These are, of course, toxic reactions and not to be expected with the dosage suggested.

SYMPTOMS FOLLOWING ADMINISTRATION

1. Sense of ~~marked~~ well-being.
2. Increase in confidence.
3. Feeling of friendliness and rapport with the interrogator.
4. Driving necessity to discuss psychosocially charged topics. Whatever the individual is trying to withhold will be forced to the top of his subconscious mind and the necessity to discuss this topic is one of the most valuable aspects of the material. (This last sentence is not based on scientific fact)

but on observation using the material)

5. Loquacious
marked activity
6. Marked *marked activity* and increased rate volume of speech.

The following signs and symptoms are considered as undesirable and as minor toxic effects: As with the preceding list they follow in order of occurrence.

1. Thickening and slurring of speech.
2. Loss of control of muscle movements.
3. Asthenia.
4. Difficulty in remembering events only a few seconds past.
5. Sweating and a feeling of warmth. (It is advisable to keep the room warm so that you can complain at the same time of being warm)
6. "Free floating", anxiety or fear.
7. Vertigo and lightheadedness.
nausea
8. Nausea, belching and other gastro-intestinal symptoms, which may include vomiting.

The following toxic results have occurred only with much higher dosages but include marked hyper-activity and physical and auditory hallucinations.

The substance has maximum usefulness when there is a friendly rapport between the interviewer and the subject. It is suggested that procedure be carried out as far as possible in a relaxed and informal social setting. If the subject should begin to show hostility, this is a toxic symptom and it would be unusual if anything was gained from the

interview because subject usually withdraws at this point. Most people under the effect have a desire to boast, proclaim their ability both in the past and of what they can do in the future. The most should be made of this. The interrogator should encourage any discussions along this line. It is obviously necessary for the interrogator to have a good background of the subject's past and possible future in order to direct the thought in the sphere in which the interrogator is most interested. The great value of the substance is that the subject is not aware at any time during the actual proceeding that he under the influence of a drug. However, due to the toxic effects which may occur it is well to have some suitable cover story such as a stove in the room which gave out obnoxious fumes which the interrogator could complain about, or food or ~~xxhm~~ alcohol which the interrogator could also complain caused him to have peculiar symptoms. In the ideal case this will not be necessary for within an hour after inhalation there should be no ill effects and within 2 hours and 1/2 after ingestion the subject should be able to conduct himself in a normal fashion. It is felt advisable that the substance might be given in another room and after the interrogation some additional procedure be undertaken to keep the subject under observation.
